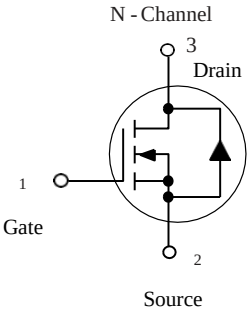
POWER MOSFET
200 mAmps, 50 Volts

SOT –23

- N-CHANNEL MOSFET in a SOT-23 Plastic Package
- Low $R_{DS(on)}$, rugged and reliable, compact industry standard SOT-23 surface mount package
- Qualified to AEC-Q101 Standards for High Reliability, HF Product
- Low current applications such as small servo motor control, power MOSFET gate drivers, and other switching applications, Meet the stringent requirements of automotive applications.



1.MAXIMUM RATINGS (T_J = 25 °C unless otherwise noted)

Rating	Symbol	Value	Unit
Drain–to–Source Voltage	V_{DSS}	50	Vdc
Gate–to–Source Voltage – Continuous	V_{GS}	±20	Vdc
Drain Current – Continuous @ T_A = 25 C – Pulsed Drain Current ($t_p \leq 10\mu s$)	 I_D I_{DM}	 220 880	mA
Total Power Dissipation @ T_A = 25 C	P_D	360	mW
Operating and Storage Temperature Range	T_J, T_{stg}	– 55 ~ 150	C
Thermal Resistance – Junction–to–Ambient	$R_{\theta JA}$	350	C/W
Maximum Lead Temperature for Soldering Purposes, for 10 seconds	T_L	260	C

2.ORDERING INFORMATION

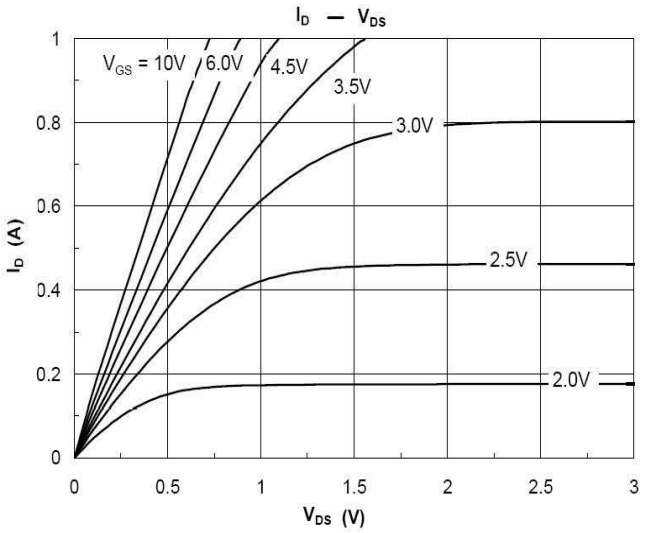
Device	Marking	Shipping
FTK138-AB	QSS	3000/Tape&Reel

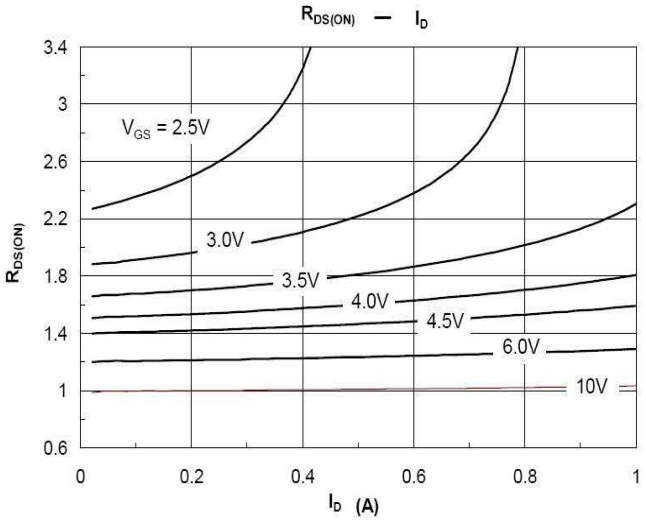
3.ELECTRICAL CHARACTERISTICS (T_A = 25 C unless otherwisenoted)

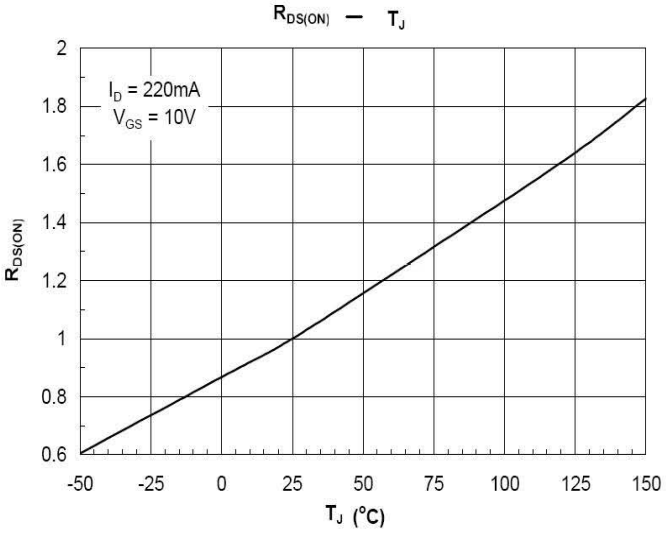
Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain–Source Breakdown Voltage (V_{GS} = 0 Vdc, I_D = 250 μAdc)		$V_{(BR)DSS}$	50	–	–	Vdc
Zero Gate Voltage Drain Current		I_{DSS}				μAdc
(V_{DS} = 25 Vdc, V_{GS} = 0 Vdc)			–	–	0.1	
(V_{DS} = 50 Vdc, V_{GS} = 0 Vdc)			–	–	0.5	
Gate–Source Leakage Current (V_{GS} = ±20 Vdc, V_{DS} = 0Vdc)		I_{GSS}	–	–	±0.1	μAdc
ON CHARACTERISTICS (Note 1.)						
Gate-Source Threshold Voltage (V_{DS}= V_{GS}, I_D = 1.0 mAdc)		$V_{GS(th)}$	0.8	1.3	1.5	Vdc
Static Drain–Source On–Resistance		$r_{DS(on)}$				Ω
(V_{GS}= 4.5 Vdc, I_D = 220 mAdc)			–	1.0	6	
(V_{GS}= 10.0 Vdc, I_D = 220 mAdc)			–	0.7	3.5	
Forward Transconductance (V_{DS} = 10 Vdc, I_D = 220 mAdc, f = 1.0 KHz)		g_{FS}	100	–	–	mmhos
Drain–Source Diode Forward Voltage (VGS=0 V, Is=440㎃)						
DYNAMIC CHARACTERISTICS						
Input Capacitance	(V_{DS} = 10 Vdc, V_{GS} = 0, f = 1MHz)	C_{iss}	–	–	50	pF
Output Capacitance	(V_{DS} = 10 Vdc, V_{GS} = 0, f = 1MHz)	C_{oss}	–	–	25	pF
Transfer Capacitance	(V_{DG} = 10 Vdc, V_{GS} = 0, f = 1MHz)	C_{rss}	–	–	8	pF
Gate Resistance	(V_{GS} = 15 mV0, f = 1MHz)	R_G	-	9	-	Ω
SWITCHING CHARACTERISTICS (Note4.)						
Turn–On Delay Time	(V_{DD} = 30V , I_D = 290㎃, V_{GS} = 10V, R_{GEN} = 25Ω)	$t_{d(on)}$	–	2.5	5	ns
Turn–On Rise Time		t_r	-	9	18	
Turn–Off Delay Time		$t_{d(off)}$	–	20	36	ns
Turn–Off Fall Time		t_f	-	7	14	

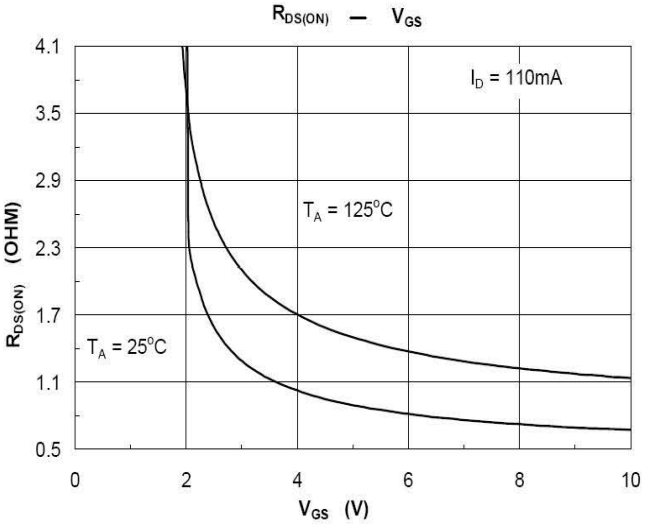
1. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2.0%.
2. Switching characteristics are independent of operating junction temperature.

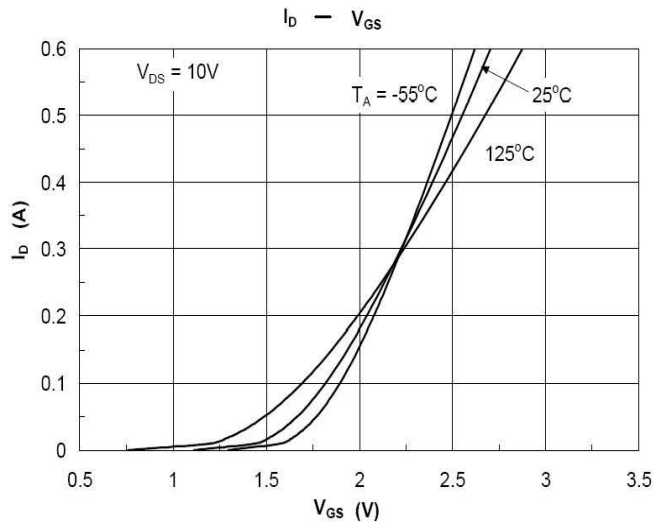
4.ELECTRICAL CHARACTERISTICS CURVES

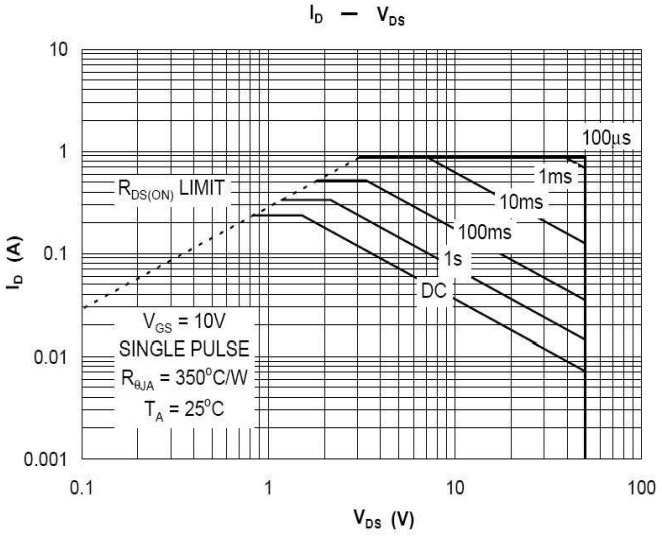






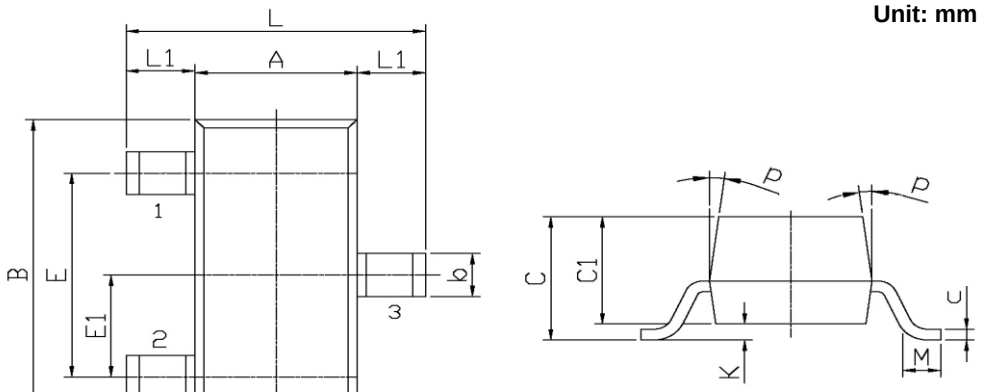






5. Package Dimensions(SOT-23)

Unit: mm



Symbol	Dimensions In Millmeters		Symbol	Dimensions In Millmeters	
	Min	Max		Min	Max
L	2.2	2.7	C	1.30Max	
L1	0.45	0.65	C1	0.90	1.20
A	1.15	1.50	c	0.05	0.20
B	2.70	3.10	K	0	0.10
E	1.70	2.10	M	0.20MIN	
E1	0.85	1.05	P	7°	
b	0.35	0.55			

6. Soldering Footprint